

TWO NEW GENERA TO ACCOMMODATE TWO NORTH AMERICAN PLANT BUGS (HETEROPTERA: MIRIDAE: PHYLINAE)

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Abstract.—The new genus *Sthenaropsidea* is established to accommodate *Sthenarus mcateei* Knight, known from eastern United States, and the new genus *Gonoporomiris* is established for *Demarata mirifica* Distant, previously known from Veracruz, Mexico, and newly reported from Grand Bahama Island, the Dominican Republic, and Florida in the United States. Provided are illustrations of the male genitalia, adult dorsal and lateral photographs, new distribution records, and a discussion of relationships.

Key Words: Heteroptera, Miridae, *Sthenaropsidea*, *Gonoporomiris*, new genera, *Sthenarus mcateei*, *Demarata mirifica*, new combinations, Nearctic, distribution

In a continuing effort to clarify relationships among Nearctic Miridae, we have become aware that a number of North American species are not congeneric with the type species of their genera of current placement. One obvious example involves the placement of five North American species in the genus *Sthenarus* Fieber (Henry and Wheeler 1988, Schuh 1995). We have determined that none of the Nearctic species belong in *Sthenarus*. We are also aware of problems involving the Palearctic species, including the possibility that even the type species, *Sthenarus rotermundi* (Scholtz), a species adventive in North America (Henry and Wheeler 1979, Wheeler and Henry 1992), may belong in another genus that has nomenclatural priority, thus, making *Sthenarus* a junior synonym. Because of this broader existing confusion and certain problems involving the North American taxa, it is not possible at this time to clarify the position of all Nearctic species

now placed in *Sthenarus*. We are, however, able to determine that *S. mcateei* Knight, an unusual, vivid reddish-orange species is not congeneric with *Sthenarus*, nor does it belong in any other phyline genus we have studied.

Another long misplaced species is *Demarata mirifica* Distant (1893), described from Veracruz, Mexico, and known only from the holotype female. With the discovery of additional specimens of *D. mirifica* from the Grand Bahama Island, the Dominican Republic, and the United States, we are able to confirm the correct subfamily placement and determine that this species does not belong in any existing genus.

As a consequence, we establish the new genus *Sthenaropsidea* to accommodate *S. mcateei* and *Gonoporomiris* to accommodate *D. mirifica*. *Sthenaropsidea mcateei* and *G. mirifica* are redescribed, their distributions are summarized, and an adult dorsal habitus illustration of *S. mcateei*, figures of



Figs. 1–2. *Gonoporumiris mirificus* (♀) from Veracruz, Mexico. 1, Dorsal aspect. 2, Lateral aspect.

male genitalia, and dorsal and lateral photographs of both species are provided.

The following acronyms are used for institutions cited: AMNH (American Museum of Natural History, New York, NY); BNHM ([British] Natural History Museum, London); FSCA (Florida State Collection of Arthropods, Gainesville, FL); PU (Purdue University, West Lafayette, IN); UK (University of Kansas, Lawrence, KS); and USNM ([U.S.] National Museum of Natural History, Smithsonian Institution, Washington, DC).

***Gonoporumiris* Henry and Schuh,
new genus**

Type species: *Demarata mirifica* Distant 1873.

Diagnosis.—Phylinae: Phylini. Small, total length 2.36–2.84 mm, flattened dorsoventrally; antennal segment II weakly but distinctly clavate in both sexes. Genitalia with a rigid sclerotized vesica of the phylina type, vesica short and stout, secondary gonopore extremely large, occupying about one-half the length of vesica. Similar in ap-

pearance to certain species of *Rhinacloa*, but vestiture of dorsum composed only of recumbent simple setae, antennae not sexually dimorphic, and male genitalia distinctive because of the very large secondary gonopore.

Description.—Small, somewhat flattened; dorsum at most weakly shining, with vestiture of recumbent, short, golden, simple setae (Figs. 1–6). Head distinctly projecting beyond anterior margin of eyes in dorsal view; posterior margin more or less conforming to anterior margin of pronotum, posterior margin of vertex weakly carinate; head short dorsoventrally, eyes occupying nearly entire height of head in lateral view. Antennal segment II weakly clavate in both sexes. Claws of moderate length, curving, most strongly so on apical one-half; parmpodia setiform, pulvilli large, extending nearly entire length of claw, adnate to claw over about one-half of length. Genitalia in male with short, stout, untwisted vesica; secondary gonopore very large, heavily spinose, occupying about one-half the length of vesica (Fig. 7); left paramere with a very

long posterior process and short, blunt anterior process (Fig. 8); right paramere oval, greatly reduced (Fig. 9); phallosome short, erect (Fig. 10).

Etymology.—Named for the extremely large secondary gonopore in the vesica of the male. Gender: masculine.

Discussion.—Although Carvalho (1952) synonymized *Demarata* Distant under the orthotyline genus *Ceratopsus* Reuter, he did not make the formal combination of *C. mirificus* until later (Carvalho 1958). Schuh and Schwartz (1985) discussed the position of *D. mirifica* and concluded that it belonged in Phylinae, but were unable to determine the generic placement, given that the only known specimen was a female. More recently, Carvalho (1988) inexplicably argued that it belonged in the mirine genus *Dagbertus* Reuter, a position cataloged by Schuh (1995). Although the structure of the pretarsus would suggest placement in the Phylinae, it is only with knowledge of the male genitalia that this position now can be confirmed.

The genitalia of *Gonopomiris* are distinctive because of the very large gonopore, which occupies about one half of the vesica (Fig. 7). The left paramere (Fig. 8), while having a form not unknown in the Phylinae, is nonetheless distinctive among New World taxa. They are additionally distinctive for the greatly reduced right paramere (Fig. 9).

Although *Demarata mirifica* has a resemblance to some species of *Rhinacloa* and possibly also to species of *Sthenaridea*, this similarity is apparently only superficial. The vesica is long, slender and twisted in all species of *Rhinacloa*; the gonopore is never strongly developed and not enlarged. Furthermore, *Rhinacloa* spp. also have a row of spicules distally on the dorsal surface of the hind femur, a feature which does not occur in *Gonopomiris mirificus*. The vesica in *Sthenaridea* is always tubular and with the secondary gonopore in the form of a simple opening, rather than as what Schuh (1974) referred to as a "horse collar," a

condition found on most Miridae. Furthermore, the structure of the parempodia in *Gonopomiris* is setiform, whereas in *Sthenaridea* the parempodia are always strongly flattened and convergent.

Gonopomiris mirificus (Distant),
new combination
(Figs. 1–10)

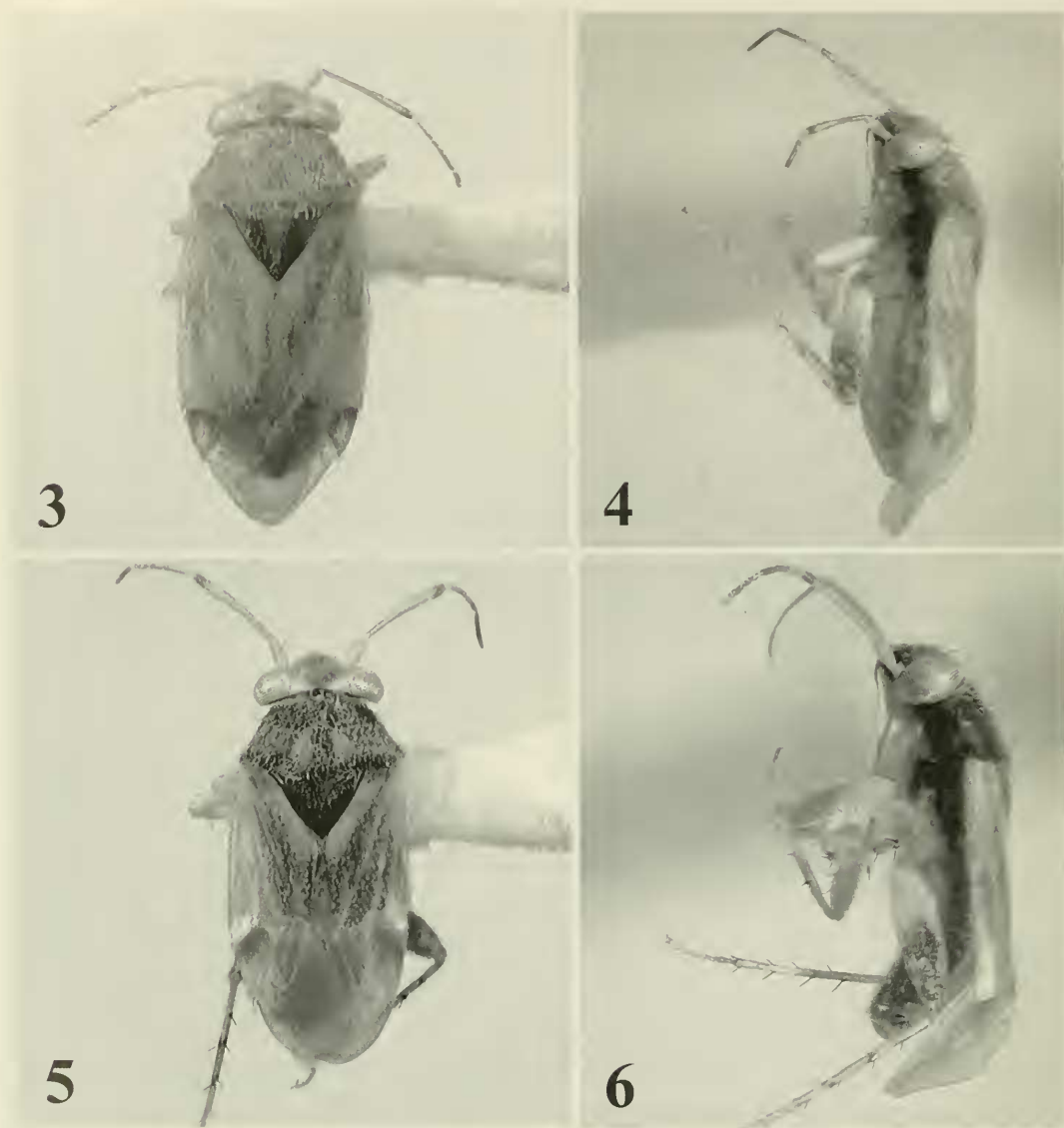
Demarata mirifica Distant 1893: 451 (n.sp.); Carvalho 1959: 355 (cat. as incertae sedis); Carvalho and Dolling 1976: 802 (disc. of type); Schuh and Schwartz 1985: 431 (disc. of generic and subfamily placement).

Ceratopsus mirificus: Carvalho 1958: 47 (cat., n. comb.)

Dagbertus mirificus: Carvalho 1988: 100 (n. comb.); Schuh 1995: 752 (cat.).

Diagnosis.—Recognized by the small size, mean length of male 2.55 mm, the overall pale brown to reddish-brown coloration, weakly clavate antennal segment II in both sexes, simple golden setae on the dorsum, and the form of the male genitalia with the very large secondary gonopore. Dark males similar in appearance to *Rhinacloa forticornis* Reuter and paler females similar to *R. basalis* (Reuter) with head conforming to anterior margin of pronotum, but differ in the more reddish coloration, the head more strongly projecting beyond the anterior margin of the eyes, the weakly clavate antennal segment II in both sexes, the vestiture of only simple setae, and the distinctive form of the male genitalia with the short, stout vesica and very large secondary gonopore (Fig. 7), basally bulbous left paramere (Fig. 8), and greatly reduced right paramere (Fig. 9).

Description.—Small, brown, often tinged with red, although head, pronotum, and scutellum often darker than hemelytra, head pale along base and posteromesal margin of eyes. Antenna pale or white, except dark extreme distal portion of segment II. Membrane fumose, veins pale. Venter reddish to castaneous; metathoracic scent-gland eva-



Figs. 3–6. *Gonoporumirir nitrificus* from Grand Bahama Island. 3, ♂, dorsal aspect. 4, ♂, lateral aspect. 5, ♀, dorsal aspect. 6, ♀, lateral aspect.

poratory area pale. Legs, including coxae, mostly pale, metafemora often red to reddish brown on apical $\frac{1}{3}$ to $\frac{1}{2}$; tibial spines dark with pale bases. Male genitalia as in generic description (Figs. 7–10).

Male ($n = 10$): Length 2.36–2.61 mm, width 0.91–1.06 mm. **Head**: Width 0.73–0.75 mm, vertex 0.32–0.36 mm. **Rostrum**: Length 0.99–1.04 mm, extending to apex of metacoxae. **Antenna**: Segment I, length

0.20–0.23 mm; II, 0.58–0.65 mm; III, 0.40–0.42 mm; IV, 0.31 mm. **Pronotum**: Length 0.40–0.46 mm, basal width 0.90–0.97 mm.

Female ($n = 10$; measurements of two Mexican females in brackets): Length 2.38–2.71 mm [2.76–2.84 mm], width 1.02–1.12 mm [1.20–ca. 1.28 mm]. **Head**: Width 0.73–0.77 mm [0.81–0.82 mm], vertex 0.33–0.35 mm [0.38–0.39]. **Rostrum**:



Figs. 7–10. Male genitalia of *Gonoporomiris mirificus*. 7, Vesica. 8, Left paramere. 9, Right paramere. 10, Phallosome.

Length 0.99–1.04 mm [1.07 mm], extending to apex of metacoxae. *Antenna*: Segment I, length 0.17–0.20 mm [0.14–0.16 mm]; II, 0.50–0.59 mm [0.61–0.64 mm]; III, 0.42 mm [0.40 mm]; IV, missing [0.29 mm]. *Pronotum*: Length 0.42–0.46 mm [0.47–0.48 mm], basal width 0.91–1.00 mm [1.04–1.07 mm].

Host.—Unknown, except for one specimen below taken on a palm, *Copernicia* sp. Also, the large series from Grand Bahama Island was probably taken on the flowers of a cabbage palm, *Sabal* sp. (W. E. Steiner, pers. comm.).

Distribution.—Previously known only from Vera Cruz, Mexico, and now recorded from the Bahamas, the Dominican Republic, and the United States (Florida). The peculiar distribution of collection dates in the U.S. (dates 1929–1939, with one in 1908, one in 1957, 1 in 1975, 2 in 1991, 1 in 1996, and 1 in 2001) suggests that this species is adventive in Florida, perhaps becoming cyclically abundant or rare depending

on periodic introductions. The lack of recent records could also indicate inadequate collecting, but one of us (TJH) collected extensively in the state during the 1980s and we have examined most collections containing Miridae from Florida and have found only six records since 1939.

We also note that the holotype female and other females from Mexico (Figs. 1, 2) and the Dominican Republic are slightly larger and lack the distinct reddish tinge typical of the material found on Grand Bahama Island (Figs. 3–6) and in Florida. However, the one associated male from the Dominican Republic compares well with males from the Bahamas and Florida, making us confident that all of this material is conspecific. Unfortunately, the Dominican Republic male is missing the abdomen and, thus, a positive confirmation is impossible. Clearly, more intensive surveys are needed to more fully determine the status of this enigmatic species.

Specimens examined.—DOMINICAN

REPUBLIC: 1 ♀, DISTRITO NACIONAL: Santo Domingo, Aug. 5, 1967, J. C. Schaffner, at black light (USNM); SANTIAGO: 1 ♂, Pedro Garcia, Aug. 23, 1967, J. C. Schaffner, at black light (USNM). GRAND BAHAMA ISLAND: 31 ♂, 33 ♀, Freeport, 20–27 June 1987, W. E. Steiner, M. J. & R. Molineaux (4 ♂, 4 ♀ AMNH; USNM). MEXICO: VERACRUZ: Holotype ♀, Atoyac, May, H. H. Smith (BNHM); 2 ♀, Cordoba, 14–15 Apr. 1908, F. K. Knab (USNM). USA: FLORIDA: 1 ♀, *Alachua Co.*, 10-10-29, A. M. Towles (USNM); 2 ♂, *Alachua Co.*, 1-IX-91, D. H. Habeck, at blacklight (FSCU); 1 ♀, *Brevard Co.*, Indian River, 1-13-30, J. R. Barass (USNM); 2 ♂, 1 ♀ [no specific locality], 1-13–18-30, J. R. Barass (1 AMNH, 2 USNM); 3 ♂, *Dade Co.*, Coconut Grove, 8-9-30, R. H. Beamer (UK); 1 ♂, *Dade Co.*, 3475 Main Highway, 24–25 July 1996, J. Brambilia, at blacklight (FSCA); 1 ♂, *Dade Co.*, Montgomery Botanical Center, 11901 Old Cutler Rd, 21 Feb. 2001, T. Dobbs, on *Copernicia* sp. (FSCA); 2 ♂, 1 ♀, *Handry Co.*, LaBelle, July 16, 1939, R. H. Beamer, P. Oman (UK, USNM); 1 ♂, *Flagler Co.*, 2-28-29, D. B. Webb (USNM); 1 ♂, 1 ♀, *Hillsboro Co.*, 2-8–15-30, B. P. Moora (USNM); 1 ♀, *Lee Co.*, Estero, May 6–12, 1908, E. P. Van Duzee (CAS); 1 ♀, Ft. Myers, 8-11-30, J. Nottingham (UK); 1 ♀, Ft. Myers, September 18, 1957, J. P. Kramer (USNM); 2 ♀, *Marion Co.*, 1-27-30, A. M. Towles (AMNH, USNM); 2 ♀ [no specific locality], 1-27-30, A. M. Towles (USNM); 1 ♂, *Putnam Co.*: no specific locality, January 7, 1930, A. M. Townes (AMNH); 1 ♂, *St. Lucie Co.*: Ft. Pierce, 8-7-30, P. W. Oman (UK).

***Sthenaropsidea* Henry and Schuh,
new genus**

Type species: *Sthenarus mcatee* Knight 1927.

Diagnosis.—Phylinae: Phylini. Small, total length 2.88–3.00 mm, delicate, broadly rounded; body color bright reddish orange,

appendages pallid to white; hemelytra finely punctate, becoming translucent on clavus and corium, especially along inner half; legs slender, length of metatibial spines two or more times diameter of segment, all tibial spines pale, lacking dark basal spots; vesica strongly twisted, with three slender, acute, apical spiculi, dorsal edge with a coarsely toothed keel or carina, subapical secondary gonopore large and distinct.

Description.—Delicate, broadly rounded, shiny, width of hemelytra nearly equal to $\frac{1}{2}$ of total length (Figs. 11–13); overall pubescence simple, semierect. Head broader than long, vertex in males subequal to combined dorsal widths of eyes, width of vertex in female ca 2.5 times combined dorsal widths of eyes; eyes lacking microsetae, occupying $\frac{3}{4}$ or more lateral height of head, deeply emarginate to accommodate antennal fossae on ventral half of anterior aspect. Antenna slender, segment I shortest, stoutest, apical diameter subequal to diameter of protibia, segment II longest, diameter subequal to basal diameter of protibia. Pronotum trapeziform, shiny, impunctate, basal width slightly greater than 2 times median length, anterior angles broadly rounded, basal margin straight or truncate. Mesoscutum broadly exposed, impunctate. Scutellum equilateral, impunctate. Hemelytron broadly rounded, finely punctate, corium and apical half of clavus translucent, pubescence simple, relatively long, semierect; apical $\frac{1}{3}$ of cuneal fracture often curved downward; membrane mostly translucent, transparent at base and inside of areoles, veins forming two distinct areoles. Ventral surface shiny, with only semierect simple pubescence. Legs slender, unmarked, tibial spines concolorous with segments, always lacking basal spots; metatibial spines long, length 2 or more times diameter of segment; tarsi slender, segment III longest; claws slender, broadly rounded, parempodia setiform, pulvilli absent or greatly reduced. Male genitalia: Genital capsule smooth, simple, without ridges or tubercles; vesica (Fig. 14) stout, strongly spiraled, with 3 slender,

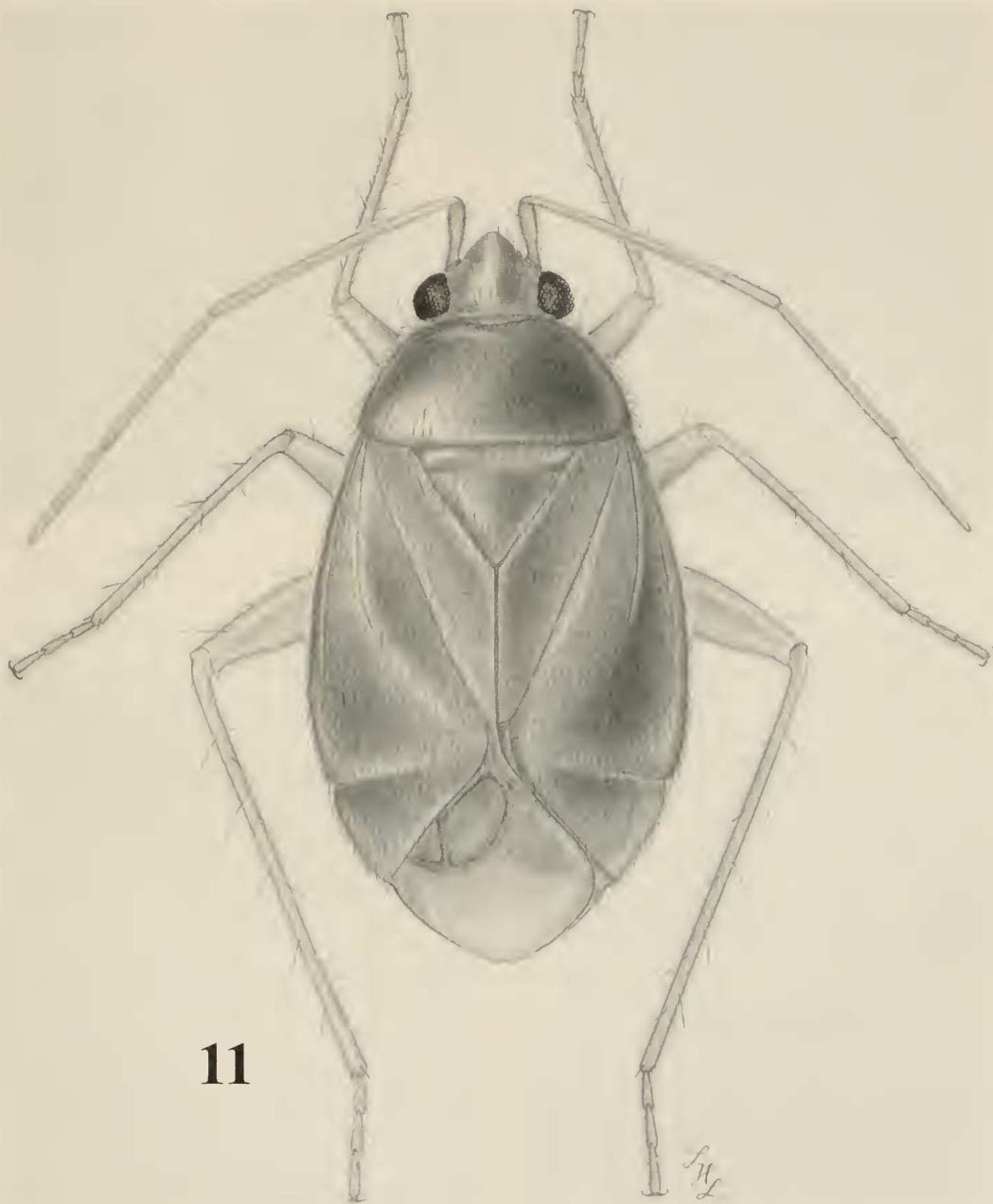
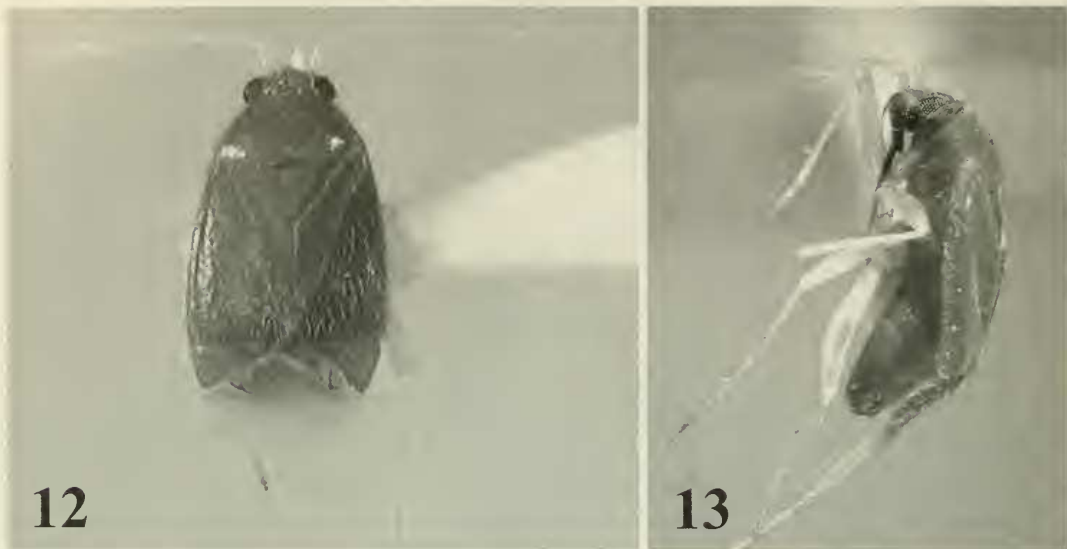


Fig. 11. Dorsal aspect of *Sthenaropsidea mcateeï* (♀).

acute, apical spiculi, dorsal edge of apical $\frac{1}{3}$ with a bluntly serrated keel or carina; secondary gonopore large; left paramere (Fig. 15) with posterior process about 2× longer than anterior process; right paramere

(Fig. 16) elongate oval; phallosome (Fig. 17) elongate, apically acute.

Etymology.—The generic name, taken from the prefix of the generic name *Sthenarus*, and from the Latin “idea,” to indicate



Figs. 12, 13. *Sthenaropsidea mcateei* (♂). 12, Dorsal aspect. 13, Lateral aspect.

the historical but not phylogenetic association of *Sthenaropsidea*. Gender: feminine.

Discussion.—The male genitalia of *S. mcateei* are unique in the Phylinae because of the stout, strongly spiraled vesica having an irregular raised ridge on the dorsal edge of apical $\frac{1}{2}$ (Fig. 14). Furthermore, *S. mcateei* is unlike any other known phylene in having a bright reddish-orange, broadly rounded body, strongly contrasted by the delicate pale or white antennae and legs.

Sthenaropsidea mcateei (Knight),
new combination
 (Figs. 11–17)

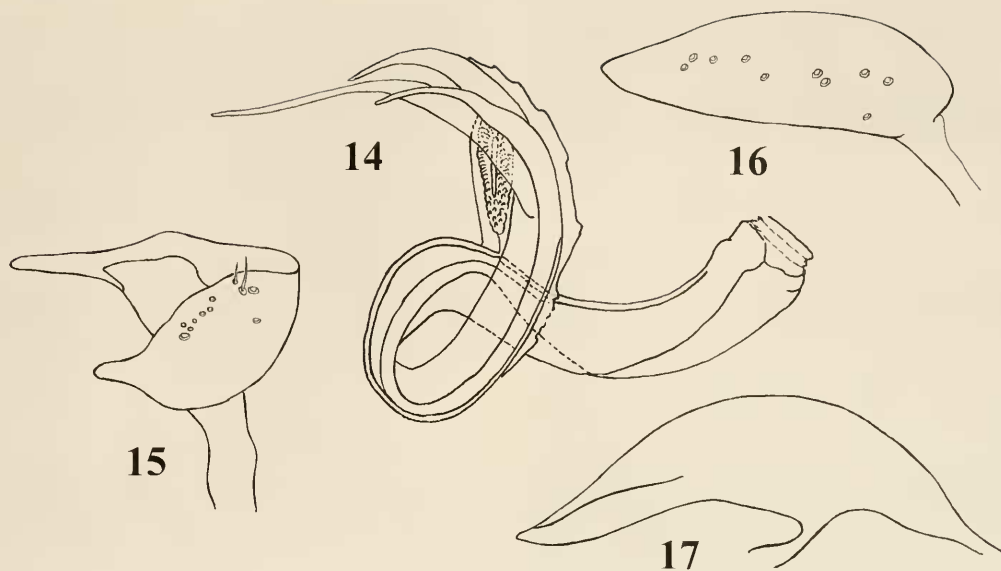
Sthenarus mcateei Knight 1927: 9 (n.sp.);
 Snodgrass et al. 1984: 852 (list, host);
 Henry and Wheeler 1988: 500 (cat.);
 Schuh 1995: 434 (cat.)

Diagnosis.—Distinguished from all other North American Phylinae by the broadly rounded, delicate, bright reddish-orange body (Figs. 6–8), the pallid to white legs and antennae, and the unique twisted male vesica.

Description.—Body coloration shiny reddish orange, dorsum clothed with long, semierect, simple, pale setae. Head and

pronotum shiny reddish orange, impunctate, calli weakly developed, not or only vaguely raised; rostral segment I and basal half of II dark reddish brown, segments III and IV pallid or pale yellowish brown. Mesoscutum and scutellum shiny reddish orange, impunctate, scutellum weakly transversely rugose. Hemelytron sparsely and finely punctate, thickly set with long, semierect pale yellow setae, uniformly shiny reddish orange, clavus and inner $\frac{1}{2}$ of corium and paracuneus becoming translucent, pale, yellowish brown, membrane translucent yellowish brown, usually more transparent along cuneal margin and inside of areoles, veins reddish orange. Ventral surface uniformly shiny reddish orange, abdomen often becoming more yellowish brown ventrally. Ostiolar peritreme pale or white. Legs uniformly pallid to almost white, including tibial spines; claws pale yellow brown. Male genitalia: Vesica (Fig. 14); left paramere (Fig. 15); right paramere (Fig. 16); phallosome (Fig. 17).

Male (n = 5): Length: 2.88–3.00 mm, width 1.35–1.40 mm. *Head*: Width 0.64–0.66 mm, width of vertex between eyes 0.30 mm. *Antenna*: Segment I, length 0.24



Figs. 14–17. Male genitalia of *Sthenaropsidea mcateeii*. 14, Vesica. 15, Left paramere. 16, Right paramere. 17, Phallosome.

mm; II, 1.14–1.18 mm; III, 0.64–0.78 mm; IV, 0.42–0.52 mm. *Rostrum*: Length 1.28–1.30 mm, extending beyond coxae to 4th or 5th abdominal segment, nearly to base of genital capsule. *Pronotum*: Length 0.46–0.48 mm, basal width 1.02–1.04 mm.

Female (n = 9): Length 2.59–2.92 mm, width 1.36–1.44 mm. *Head*: Width 0.61–0.62 mm, width of vertex between eyes 0.36–0.37 mm. *Antenna*: Segment I, length 0.22–0.24 mm; II, 1.04–1.07 mm; III, 0.54–0.59 mm; IV, 0.42–0.44 mm. *Rostrum*: Length 1.30–1.31 mm, extending to base of ovipositor. *Pronotum*: Length 0.46–0.48 mm, basal width 1.02–1.08 mm.

Hosts.—*Sthenaropsidea mcateeii* specializes on members of the grape family Vitaceae. The type series from Odenton, Maryland, was taken on wild grapevine, *Vitis* sp. (Knight 1927); adults and nymphs were collected by TJH and A. G. Wheeler, Jr. on wild grape (*Vitis* sp.) in Arkansas; and Snodgrass et al. (1984) found this species in Mississippi on pigeon grape (*Vitis cinerea* Engelm.), peppervine (*Ampelopsis arborea* (L.) Koehne), another vitaceous vine), and *Cornus drummondii* C. A. Meyer.

Their (Snodgrass et al. 1984) record from *Cornus* undoubtedly represents an accidental record or a case of the trees having a vitaceous vine growing among them.

Distribution.—Previously recorded from Maryland and Mississippi (Henry and Wheeler 1988, Schuh 1995). Arkansas, Indiana, and Louisiana are new state records.

Specimens examined.—USA: ARKANSAS: 1 ♀, *Clark Co.*, Arkadelphia, Ouachita Bap. Univ., 10 June 1987, T. J. Henry and A. G. Wheeler, Jr., taken on *Vitis* sp. (USNM); 1 ♀, *Clark Co.*, Rt. 8, 1 mi. SE Griffithtown, 10 June 1987, T. J. Henry and A. G. Wheeler, Jr., taken on *Vitis* sp. (USNM). INDIANA: 1 ♀, *Tippecanoe Co.*, 7 July 1939, D. W. LaHue, light trap (PU). LOUISIANA: 3 ♂, 2 ♀, *Natchitoch Parish*, Kisatchie Natl. For., 18 June 1988, at MV & blacklight, D. A. Rider (D. A. Rider colln., Fargo, ND; 1 ♂ USNM). MARYLAND: Holotype ♀ (29 July 1917 and 4 paratype ♀ (12 July 1914), Odenton, on *Vitis*, W. L. McAtee coll. (USNM); 2 ♂, 1 ♀, *Prince Georges Co.*, Cheverly, 38°56'N 76°55'W, 9 July 1992, W. E. Steiner and J. M. Swearingen (USNM; 1 ♂ AMNH).

MISSISSIPPI: 1 ♂, 3 ♀, *Washington Co.*, Stoneville, 29 June 1982, G. L. Snodgrass coll., taken on *Ampelopsis arborea*, *Cornus drummondii*, and *Vitis cinerea* (1 ♀ AMNH; USNM).

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